EXPERIMENTS ON THE STRENGTH OF HOOKED IRON TIES.

The following experiments, referred to last week, were made at Her Majesty's Dockyard, Woolwich, with Messrs. Bramah's hydraulic press, in January last; they shew plainly the weakness of hooks:—

Common English Round Iron, 1 1/8 in. diameter.

No. 1.—Hooked.

Strain of 4 tons, no effect.

,,	5	,,	opened 1/16	of an in.
,,	5 1/2	,,	,, 1/8	,,
,,	6	,,	,, 3/16	,,
,,	6 1/2	,,	,, 1/4	,,
,,	6 3/4	,,	,, 5/16	,,
,,	7	,,	,, 3/8	,,
,,	7 1/4	,,	broke.	

No. 2.—Straight (same piece).

Strain of 10 tons, no effect.				
,,	16	,,	,,	
,,	18	,,	lengthened	1/16 in 2 ft.
,,	20	,,	,,	1/8 ,,
,,	21	,,	,,	3/16 ,,
,,	22	,,	,,	1/4 ,,
,,	23	,,	,,	5/16 ,,
,,	24	,,	,,	1/8 ,,
,,	25	,,	,,	7/16 ,,
,,	26	,,	,,	3/8 ,,
,,	26 1/2	,,	broke.	

No. 3.—Hooked open 1 1/8.

Strain of 5 1/2 tons, no effect.				
,,	6	,,	opened	1/16
,,	6 1/2	,,	,,	1/8
,,	6 3/4	,,	,,	3/16
,,	7	,,	,,	1/4
,,	7 1/2	,,	,,	5/16
,,	7 3/4	,,	,,	3/8
,,	7 3/4	,,	,,	7/16
,,	7 1/2	,,	broke.	

No. 4.—Straight (same piece as No. 3).

Strain of 16 tons, no effect.				
,,	18	,,	lengthened	1/16 in 2 ft.
,,	20	,,	,,	1/8 ,,
,,	21	,,	,,	1 ,,
,,	22	,,	,,	1 1/8 ,,
,,	23	,,	,,	1 1/4 ,,
,,	24	,,	,,	1 3/8 ,,
,,	25	,,	,,	2 1/8 ,,
,,	26	,,	,,	3 1/8 ,,
,,	26 1/2	,,	broke.	

S.C. Crown Iron, 1 1/16 in. diameter.

No. 5.—Hooked, 1 1/2 open.

Strain of 5 tons, opened	6	,,	,,	1/16
,,	6 1/2	,,	,,	1/8
,,	7	,,	,,	3/16
,,	7 1/2	,,	,,	1/4
,,	8	,,	,,	1 1/16
,,	8 1/2	,,	straightened out.	

No. 6.—Straight (same piece).

Strain of 15 tons, no effect.				
,,	17	,,	1/16	in 2 ft.
,,	20	,,	1	,,
,,	22	,,	1 1/8	,,
,,	24	,,	2 1/8	,,
,,	26	,,	6 1/2	,, reduced to 1/8 diam. and broke.

Best Mitre Iron, 1 1/8 in. diameter.

No. 7.—Linked.

Strain of 15 tons, stretched	1/8	in 3 ft.		
,,	16	,,	,,	1/16 ,,
,,	17	,,	,,	1/8 ,,
,,	18	,,	,,	1/16 ,,
,,	19	,,	,,	1 ,,
,,	20	,,	,,	1 1/8 ,,
,,	21	,,	,,	1 1/4 ,,
,,	22	,,	,,	2 ,,
,,	23	,,	broke.	

No. 8.—Straight (same as No. 7).

Strain of 23 tons, stretched	1/8			
,,	24	,,	,,	1/16
,,	25	,,	,,	1/8 broke.

No. 9.—Same as No. 7, linked.

Strain of 15 tons, stretched	1/8	in 3 ft. dist.		
,,	16	,,	,,	1/16 ,,
,,	17	,,	,,	1/8 ,,
,,	18	,,	,,	1/16 ,,
,,	19	,,	,,	1/8 ,,
,,	20	,, broke.		

No. 10.—Straight.

Strain of 20 tons, no effect.				
,,	21	,,	stretched	1/16
,,	22	,,	,,	1/8
,,	23	,,	,,	1/8
,,	24	,,	,,	1/16
,,	25	,,	,,	1
,,	25 1/2	,, broke.		

Mr. Webb's Iron, 1 1/16 in. diameter.

No. 11.—A Double Hook.

Strain of 2 tons, 1 hook opened—2nd hook.			
,,	2 1/16	,,	none.
,,	3 1/16	,,	1/16
,,	4 broke.		

No. 12.

Strain of 2 tons, no effect.			
,,	3	,,	1/16 opened.
,,	4	,,	1/8 ,,
,,	5	,,	1/8 ,,
,,	6	,,	1 1/8 ,,
,,	6 1/2	,, broke.	

Mr. Towne's Iron Mitre, round, 1 1/16.

No. 13.—Flat Eye, Hook, and Key.

Strain of 8 tons, no opening.
,, 16 ,, broke at angle.

	Iron.	Tons.	Iron.	Tons.
Note.—As	$(1\frac{1}{16})^2$	: 16 ::	$(1\frac{1}{16})^2$	: 13.

No. 14.—Same piece straight.

Strain of 30 tons, stretched 1/16 in 10 in.
,, 30 1/2 ,, broke.

Note.—As	$(1\frac{1}{16})^2$	:	$(1\frac{1}{16})^2$	:: 30 : 24 1/16

STATE OF DORCHESTER.

The Reports of the Central Board of Health, on the causes of mortality, the sources of disease, and the general insanitary condition of affairs in our towns, in the middle of the nineteenth century, will constitute, in the eyes of future, and it is to be hoped more rational and enlightened generations, a sort of sanitary doomsday-book, in which, to our shame as a generation, in too many respects, will be revealed, in minute detail, a loathsome picture of our barbarous habits as a people, living in the midst of remediable corruption and preventible mortality, in a state of stupid and brutal contentment that would not be credited but for these official and salutary documents.

As Mr. Rawlinson, the superintending inspector of the Central Board of Health, in his searching and able report on Dorchester, recently published, observes, in allusion to various sensible and obvious recommendations of the learned and wise Erasmus as to ventilation, drainage, and other improvements, given more than 300 years ago, but still remaining to be carried out:—

"The following is a short description of England in the reign of Queen Victoria:—Houses are built without order or arrangement upon a damp, undrained, subsoil. They have no proper means of ventilation; the sexes amongst the poor are generally crowded into single rooms; the supply of water is either deficient or vitiated at its source, most frequently both; refuse is accumulated and allowed to decay and give off poisonous gases within or near dwelling-houses of all classes, either in covered cesspools or in open middens; large sums of money are expended to make this objectionable and dangerous provision for the generation of disease; streets are left unpaved for years, and are never cleansed."

Such is, indeed, still the undeniable state of the towns in general throughout this great empire. Let us hope that the Board of Health, by thrusting these unsavoury facts under our very noses as a nation, will induce us to bestir ourselves, and to "set our houses in order," before we ourselves are prematurely cut off as a generation, so that we may leave them to our posterity in something like a state of approximation towards sanitary cleanliness, that will constitute, in some measure, an example to our children, and not an unmitigated disgrace to ourselves.

Dorchester is no exception to the general rule: it is a melancholy mixture of rampant evil and of sickly but commendable and hopeful good. "There is no under-ground drainage in any street." "The churchyards are in a most disgusting condition. St. Peter's churchyard is saturated with human flesh." "There is no water brought to any of the houses, and very many have neither pumps nor wells." Typhus fever rages perpetually in the midst of eternal filth. The walls and foundations of houses are saturated with unmentionable abominations. In a word, the horrors of cholera have had no salutary influence, and have scourged the town without avail. All stands in *statu quo*, awaiting with open arms the return of the grim pestilence, as a household awaits the coming of one whom it cherishes and serves.

Mr. Rawlinson's report contains many important suggestions, some of which at least, it is to be hoped, will be promptly acted on. These, however, we need not here particularise, our duty, as regards sanitary matters, consisting more in general suggestions than in their local application to circumstances.

In speaking of the churchyards, tombs, &c. Mr. Rawlinson observes that—

"It is very remarkable how few works of real art are to be found as tombs or monuments, although hundreds of thousands of pounds have been expended. The money paid for some tawdry monument would have purchased a work of art from some sculptor which would have been alike creditable to the memory of the deceased, as of his living friends, and an ornament to the district."

On the subject of gas, we are pleased to trace the influence of The Builder, both in the reporter's own remarks and in the history of the successive reductions of price, with continued prosperity of the company, at Dorchester. The reporter is obviously anxious, as we are, for the far more extensive use of gas both for public and private purposes, and at Dorchester he is persuaded "that further reductions of price may be made with profit to the shareholders as with advantage to the consumers."

"And when the true interests of producers and consumers shall be recognized throughout the country, the same comparative extent of consumption will take place. Companies will learn that there is no safety to their property in high charges; and as a matter of justice to all, there will be one uniform price to large and to small consumers.

In the return or statement moved for by Mr. Hume, M.P. on gas companies established by Act of Parliament, and printed 31st May, 1850, it is shown that as a whole such companies must be considered prosperous. Fifty-five have declared dividends of 10*l.* per cent. per annum and upwards; few are below 5*l.* per cent.; and *those generally which cannot exhibit so good a dividend can, however, show the highest price*, and most probably *the least facility for the use of their gas*.

Abundance of light is not only a source of convenience and comfort, but, as applied to a town, lamps take the place of police, and *prevent* much immorality and crime."

The importance of ventilation in connection with the use of gas is very properly urged; but indeed, as remarked, it will compel ventilation where probably none before existed.

Public Baths in Paris.—There are at the present time in Paris (says the *Lancet*) 125 public bath establishments, besides the four large floating baths, where warm bathing is carried on in the winter and cold in the summer. The yearly number of baths taken is 2,116,325, without reckoning the baths given in the hospitals. All these establishments are situated in the most respectable and healthy parts of the metropolis. The average price of a bath is sixpence, the minimum fourpence, and the maximum eightpence.

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